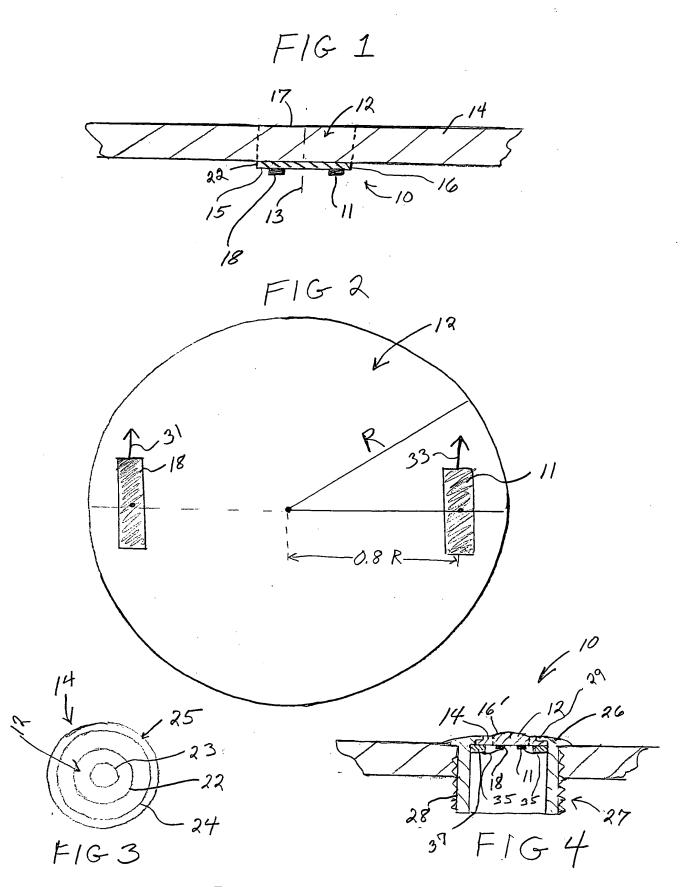
Inventor: Knowles, et al.
For: ACOUSTIC WAVE ICE AND WATER

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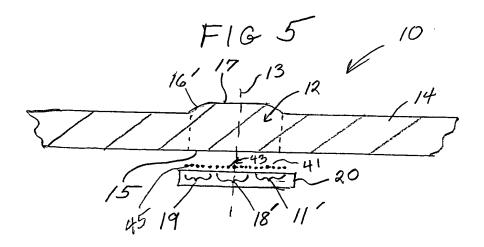
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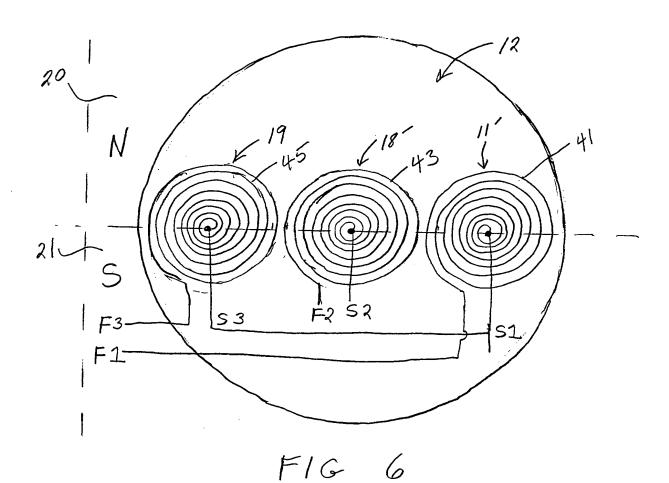


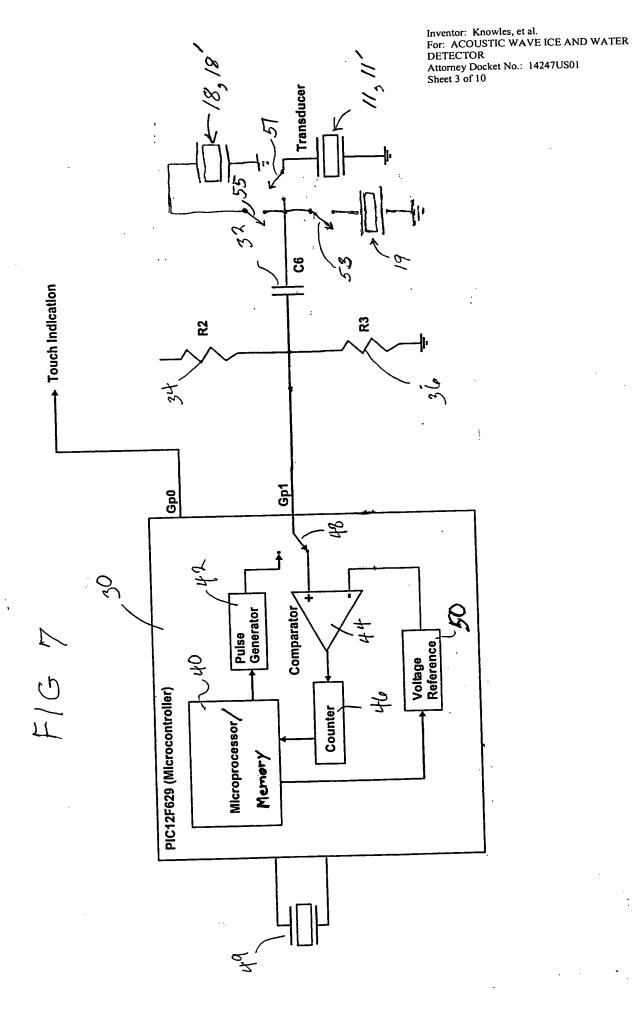
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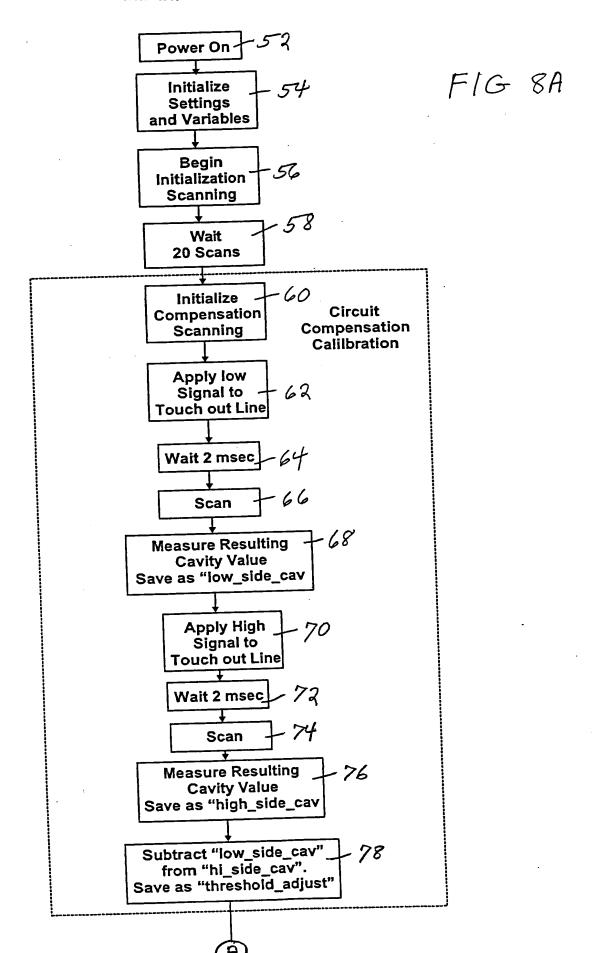
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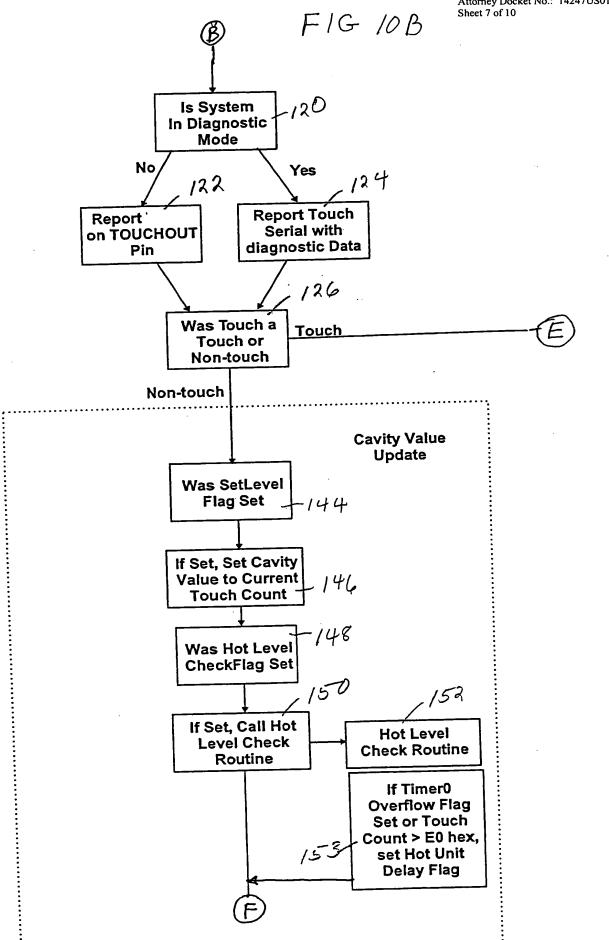
Inventor: Knowles, et al.
For: ACOUSTIC WAVE ICE AND WATER **DETECTOR** Attorney Docket No.: 14247US01 (A) Sheet 5 of 10 FIG 8B Wait 80 10 Scans Hot **Test for Very High** Level Signal Output Check - Possible Counter Overflow (Timer overflow or Signal > E0 Hex) 86 Set Delay Flag to Signal Level Ok Signal Count start Should be delayed to Compensate Wait 88 10 Scans Set Cavity Value to Current TOUCH COUNT Value 90 (Start Point) Start Standard Scanning 94 Process Splits at this Point to a Foreground Process and a Background Process. Background Process is driven off of a timer interrupt Foreground

Background

For: ACOUSTIC WAVE ICE AND WATER DETECTOR Attorney Docket No.: 14247US01 Sheet 6 of 10 FIG 10A FIG 9 Foreground Background **Process Process** 96 Save Count + 100 Monitor Value Request Request for not posted Recalibration Timer 0 98 Overflow? --102 Request posted **Set Hot Level** Check Flag Shutdown Normal Scanning Look at previous TOUCHOUT If = 1; add threshold_adjust 104 Circuit to threshold Compensation Calibration Is Touch Count (See Page 2) 106 Less than **Current Threshold** No Yes ,110 108 Set Set **TouchCurrent TouchCurrent** Flag to 1 Flag to 0 **Does TouchCurrent** /12 match previous TouchCurrent Value? Yes 116 Reset TouchCount Increment Set TouchLevel to Touch CURRENT **TouchCurrent** 118 Does TouchCurrent Match TouchHist No Yes

Inventor: Knowles, et al.

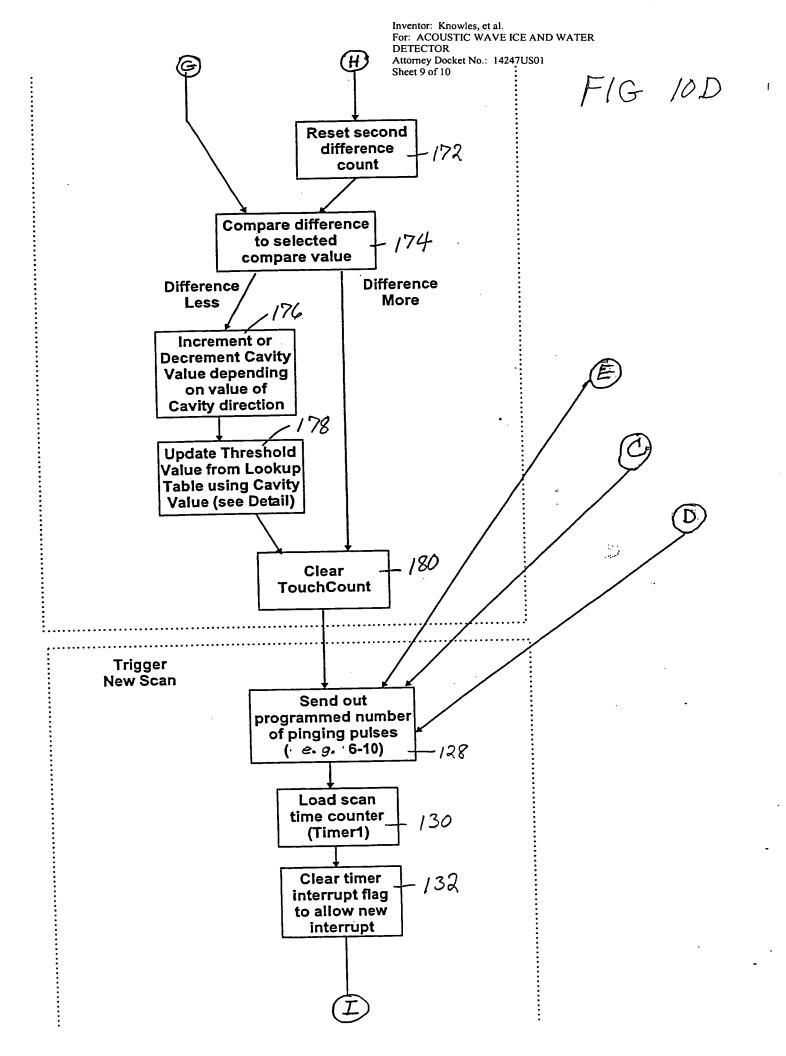
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For: ACOUSTIC WAVE ICE AND WATER
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For: ACOUSTIC WAVE ICE AND WATER **DETECTOR** Attorney Docket No.: 14247US01 Sheet 8 of 10 COMPARE DIFFERENCE BETWEEN TOUCH COUNT LCAVITY VALUE TO HIGH DIFFERENCE VALUE If Touch Count minus Cavity Value exceeds predifined difference value; assume change in cavity value needed. Set Cavity Value to Current Touch -150 Value Compare 158 **Touch Count** to Cavity Value **Set Cavity** 160 Direction Calculate the Difference Between Touch **Count and Cavity Value** Increment second difference count -166 Look at second difference Count to Determine which Compare difference to use Count equal Count less to second than second - 168 difference compare difference compare Set difference Set difference compare to compare to secondary level primary level

Inventor: Knowles, et al.

FIG 10C



Inventor: Knowles, et al.
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Has hot unit delay flag been set?

No

Reset return pulse counter
(TIMER 0)

Yes

Delay start

of return pulse count

-142

Counter for

count

Return from

interrupt to end current background process

Timeout of Timer1 triggers the interrupt to begin a new background process.

timing return ± 140

136

FIG 10E

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